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7 Attorneys for Southwest Energy Efficiency Project
8 and Western Resource Advocates

BEFORE THE ARIZONA CORPORATION COMMISSION

9 JEFF HATCH-MILLER, CHARIMAN
10 WILLIAM A. MUNDELL
11 MIKE GLEASON
12 KRISTIN K. MAYES
13 BARRY WONG

14 IN THE MATTER OF THE APPLICATION OF
15 ARIZONA PUBLIC SERVICE COMPANY FOR
16 A HEARING TO DETERMINE THE FAIR
17 VALUE OF THE UTILITY PROPERTY OF THE
18 COMPANY FOR RATEMAKING PURPOSES,
19 TO FIX A JUST AND REASONABLE RATE OF
20 RETURN THEREON, TO APPROVE RATE
21 SCHEDULES DESIGNED TO DEVELOP SUCH
22 RETURN, AND TO AMEND DECISION NO.
23 67744

Docket No. E-01345A-05-0816

NOTICE OF FILING DIRECT
TESTIMONY AND EXHIBITS

24 Southwest Energy Efficiency Project, through its undersigned counsel, hereby provides
25 notice that it has this day filed the written direct testimony and exhibits of Jeffrey A. Schlegel in
connection with the above-captioned matter.

Arizona Corporation Commission
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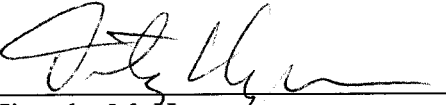
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1 DATED this 18th day of August, 2006.

2 ARIZONA CENTER FOR LAW IN
3 THE PUBLIC INTEREST

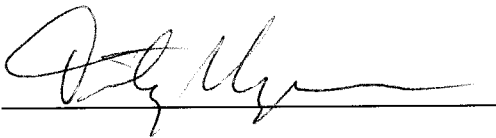
4 By 
5 Timothy M. Hogan
6 202 E. McDowell Rd., Suite 153
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Efficiency Project and Western
Resource Advocates

9 ORIGINAL and 13 COPIES of
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Phoenix, AZ 85007

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18 
19

BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

JEFF HATCH-MILLER, Chairman
WILLIAM A. MUNDELL
MIKE GLEASON
KRISTIN K. MAYES
BARRY WONG

IN THE MATTER OF THE APPLICATION
OF ARIZONA PUBLIC SERVICE COMPANY
FOR A HEARING TO DETERMINE THE
FAIR VALUE OF THE UTILITY PROPERTY
OF THE COMPANY FOR RATEMAKING
PURPOSES, TO FIX A JUST AND
REASONABLE RATE OF RETURN
THEREON, TO APPROVE RATE
SCHEDULES DESIGNED TO DEVELOP
SUCH RETURN, AND TO AMEND
DECISION NO. 67744.

DOCKET NO. E-01345A-03-0816

Direct Testimony of

Jeff Schlegel
Southwest Energy Efficiency Project (SWEEP)

August 18, 2006

**Direct Testimony of Jeff Schlegel, SWEEP
Docket No. E-01345A-03-0816**

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Introduction

1
2
3
4 Q. Please state your name and business address.

5
6 A. My name is Jeff Schlegel. My business address is 1167 W. Samalayuca Drive,
7 Tucson, Arizona 85704-3224.
8
9

10 Q. For whom and in what capacity are you testifying?
11

12 A. I am testifying on behalf of the Southwest Energy Efficiency Project (SWEEP). I am
13 the Arizona Representative for SWEEP.
14
15

16 Q. Please describe the Southwest Energy Efficiency Project.
17

18 A. SWEEP is a public interest organization dedicated to advancing energy efficiency as
19 a means of promoting both economic prosperity and environmental protection in the
20 six states of Arizona, Colorado, New Mexico, Nevada, Utah, and Wyoming. SWEEP
21 works on state energy legislation, analysis of energy efficiency opportunities and
22 potential, expansion of state and utility energy efficiency programs as well as the
23 design of these programs, building energy codes and appliance standards, and
24 voluntary partnerships with the private sector to advance energy efficiency. SWEEP
25 is collaborating with utilities, state agencies, environmental groups, universities, and
26 energy specialists in the region. SWEEP is funded primarily by foundations, the U.S.
27 Department of Energy, and the U.S. Environmental Protection Agency. I am the
28 Arizona Representative for SWEEP.
29
30

31 Q. What are your professional qualifications?
32

33 A. I am an independent consultant specializing in policy analysis, evaluation and
34 research, planning, and program design for energy efficiency and clean energy
35 resources. I consult for public groups and government agencies, and I have been
36 working in the field for over 20 years. In addition to my responsibilities with
37 SWEEP, I am working or have worked extensively in many of the states that have
38 effective energy efficiency programs, including California, Connecticut,
39 Massachusetts, New Jersey, Vermont, and Wisconsin. In 1997, I received the
40 Outstanding Achievement Award from the International Energy Program Evaluation
41 Conference. I have represented SWEEP before the Commission since 2002.
42
43

Summary of Testimony and Recommendations

Q. Please summarize your testimony.

A. I will testify that:

- The Commission should increase energy efficiency in the Arizona Public Service Company (APS) service territory to achieve significant and cost-effective benefits for APS customers, the electric system, the economy, and the environment.
- Specifically, the Commission should set APS Demand Side Management (DSM) energy efficiency program goals in the form of an Energy Efficiency Standard (EES). The EES should require APS DSM energy efficiency programs to: (1) achieve energy savings equal to at least 5% of total energy resources needed to meet retail load in 2010, and at least 15% in 2020; and (2) reduce summer peak demand by at least 5% of total capacity resources needed to meet retail peak demand in 2010, and at least 15% in 2020. The goals of the EES are meaningful and realistic, and they can be achieved with cost-effective energy efficiency programs.
- Achieving the goals of the Energy Efficiency Standard would save consumers and businesses \$1.4 billion during 2005-2020, eliminate the need for about 1,000 MW of new power plants by 2020 and the associated power line and pipeline infrastructure costs, provide 1,600 GWh of cumulative annual energy savings in 2010 and almost 7,000 GWh in 2020, reduce average annual load growth in retail energy and summer peak demand by 32% (from 3.8% to 2.6%), reduce electricity price spikes and the risks of natural gas price volatility, and reduce air pollution and the carbon emissions that cause global warming.
- Other states and utilities have achieved energy savings equivalent to or greater than the EES goals that SWEEP proposes.
- The existing Commission-approved DSM energy efficiency programs should be expanded to achieve the goals of the EES. While some additional DSM energy efficiency programs or program elements may be needed to achieve the EES goals, and may also be valuable for providing additional benefits to APS customers, the primary mechanism for achieving the EES goals should be the expansion of existing programs already approved by the Commission.
- The performance to date of the recently-approved APS DSM energy efficiency programs has been very good, and the programs are providing significant net benefits (over \$4.2 million of net economic benefits in 2005).

-
- 1 • The Commission should authorize adequate funding to achieve the goals of the
2 Energy Efficiency Standard (EES). SWEEP estimates that energy efficiency
3 funding of \$0.002 per kWh of retail energy sales (2 mills) will be necessary to
4 achieve the EES goals. In 2007, the third year of the 2005-2007 Portfolio Plan,
5 total DSM energy efficiency funding should be increased from about \$25 million
6 to \$38 million, an increase of about \$13 million. In 2008 and future years, total
7 DSM energy efficiency funding should be equivalent to \$0.002 (2 mills) per kWh
8 of retail energy sales, which would be \$56.8 million in 2008. The additional
9 DSM funding for 2008 would amount to \$40.8 million (the amount above the \$16
10 million per year authorized in Decision No. 67744). Funding for any DSM
11 demand response and load management programs should be in addition to the
12 energy efficiency program funding.
13
- 14 • Energy efficiency funding and cost recovery for the additional DSM funding and
15 the total DSM funding could be accomplished through funding in base rates, a
16 DSM adjustment mechanism, a system benefits surcharge, amortizing or
17 capitalizing the DSM investments over time, or a combination of funding
18 mechanisms. SWEEP does not have a strong preference for one particular
19 mechanism. SWEEP believes it would be best to build on the existing
20 Commission-approved funding mechanisms (base rates and a DSM adjustment
21 mechanism) and use a combination of mechanisms going forward.
22
- 23 • APS should file an implementation plan to achieve the goals of the EES, covering
24 the 2008-2020 program years, in the spring of 2007, at the same time APS refiles
25 the Non-Residential portion of its DSM Portfolio Plan (per Commission order).
26 The EES Implementation Plan should be developed by APS with input from and
27 review by the Collaborative DSM Working Group, which includes Staff and
28 interested parties. The EES Implementation Plan would be reviewed by Staff, and
29 then be reviewed and approved by the Commission prior to implementation for
30 2008 and future years.
31
- 32 • SWEEP supports complementary approaches such as demand response and load
33 management programs to encourage peak load reductions, and pricing and rate
34 designs to encourage energy efficiency and reduce peak demand. SWEEP
35 supports these approaches as complements to effective energy efficiency policies
36 and programs, not as replacements for cost-effective utility DSM energy
37 efficiency programs.
38

The Public Interest: Benefits of Increasing Energy Efficiency

Q. What is the public interest in increasing energy efficiency in the APS service territory?

A. Increasing energy efficiency will provide significant and cost-effective benefits for APS customers (residential consumers and businesses), the electric system, the economy, and the environment. Increasing energy efficiency will save consumers and businesses money through lower electric bills, resulting in lower total costs for customers. Increasing energy efficiency will also reduce load growth, diversify energy resources, enhance the reliability of the electricity grid, reduce the amount of water used for power generation, reduce air pollution and carbon emissions, and create jobs and improve the economy. In addition, meeting a portion of load growth through increased energy efficiency can help to relieve system constraints in load pockets.

By reducing electricity demand, energy efficiency mitigates electricity and fuel price increases and reduces customer vulnerability and exposure to price volatility. Energy efficiency does not rely on any fuel and is not subject to shortages of supply or increased prices for natural gas or other fuels.

Energy efficiency is a reliable energy resource that costs less than other resources for meeting the energy needs of customers in the APS service territory. The total cost (sum of program and customer costs) for energy efficiency savings is two to three cents per lifetime kWh saved, delivered to the customer. This is significantly less than the cost of conventional generation, transmission, and distribution. The utility program cost to APS ratepayers is even lower, about one to two cents per lifetime kWh saved.

**The Energy Efficiency Standard (EES):
Goals for Energy Savings and Peak Demand Reduction**

Q. Specifically, what actions should the Commission take to increase energy efficiency goals in the APS service territory?

A. The Commission should set APS Demand Side Management (DSM) energy efficiency program goals in the form of an Energy Efficiency Standard (EES). The EES should require APS DSM energy efficiency programs to: (1) achieve energy savings equal to at least 5% of total energy resources needed to meet retail load in 2010, and at least 15% in 2020; and (2) reduce summer peak demand by at least 5% of total capacity resources needed to meet retail peak demand in 2010, and at least 15% in 2020.

1 Meeting the EES goals would provide cost-effective benefits to consumers, the
2 electric system, the economy, and the environment. And meeting the EES goals
3 would contribute substantially to the achievement of the adopted goal of the Western
4 Governors Association (WGA) to increase energy efficiency 20% by 2020.

5
6
7 Q. What benefits would result from achieving the EES goals?

8
9 A. Achieving the goals of the Energy Efficiency Standard would save consumers and
10 businesses \$1.4 billion during 2005-2020, eliminate the need for about 1,000 MW of
11 new power plants by 2020 and the associated power line and pipeline infrastructure
12 costs, provide 1,600 GWh of cumulative annual energy savings in 2010 and almost
13 7,000 GWh in 2020, reduce average annual load growth in retail energy and summer
14 peak demand by 32% (from 3.8% to 2.6%), reduce electricity price spikes and the
15 risks of natural gas price volatility, and reduce air pollution and the carbon emissions
16 that cause global warming. See Exhibit JS-1.

17
18 Essentially, the EES would result in a 1,000 MW "efficiency power plant" that would
19 provide \$1.4 billion of net economic benefits to consumers, instead of building
20 conventional power plants that would cost more and expose consumers to higher
21 electricity prices, use precious water, and harm the environment.

22
23
24 Q. Are the goals of the EES reasonable and achievable?

25
26 A. Yes, the proposed EES goals are both reasonable and achievable. The goals are
27 reasonable and achievable considering the low level of energy efficiency activities in
28 Arizona in the past, the need to ramp up energy efficiency efforts in the early years,
29 the high rate of load growth in the APS service territory, the significant energy
30 efficiency potential in new construction, and the historical energy efficiency
31 performance in leading states.

32
33
34 Q. Have other states or utilities achieved energy savings equivalent to the EES goals that
35 SWEEP proposes?

36
37 A. Yes. According to a 2005 study by the American Council for an Energy Efficient
38 Economy (ACEEE), based on 2003 data the utilities report to EIA, seven states
39 achieved cumulative annual energy savings greater than 5% of retail energy sales.¹ In
40 terms of 2003 cumulative annual energy savings as a percent of 2003 retail sales, the
41 seven states saved energy equivalent to between 5.8% and 7.8% of retail sales. All
42 seven of the states (Connecticut, California, Washington, Minnesota, Rhode Island,

¹ "ACEEE's Third National Scorecard on Utility and Public Benefits Energy Efficiency Programs: A National Review and Update of State-Level Activity" by D. York and M. Kushler; American Council for an Energy Efficient Economy, October 2005, Report Number U054; www.aceee.org.

Oregon, and Massachusetts) have continued their energy efficiency programs since 2003, therefore their cumulative energy savings in 2006 should be even higher.

Q. Is SWEEP proposing additional DSM energy efficiency programs to achieve the EES goals?

A. The existing Commission-approved DSM energy efficiency programs should be expanded to achieve the goals of the EES. While some additional DSM energy efficiency programs or program elements may be needed to achieve the EES goals, and may also be valuable for providing additional benefits to APS customers, the primary mechanism for achieving the EES goals should be the expansion of existing programs already approved by the Commission.

Q. Are the existing APS DSM programs performing adequately (to date) to be able to be expanded to achieve the EES goals?

A. Yes. The performance to date of the recently-approved APS DSM energy efficiency programs has been very good, and the programs are providing significant net benefits (over \$4.2 million of net economic benefits in 2005). See Exhibit JS-1.²

SWEEP Estimate of Energy Savings and Funding for the APS Service Territory

Q. Has SWEEP prepared an estimate of the impact of the EES goals in terms of energy savings and associated funding in 2005 through 2020?

A. Yes. See Exhibit JS-1, which shows annual and cumulative annual energy savings, the impact of the energy savings on the forecast and load growth, the total and additional funding that SWEEP estimates will be necessary to achieve the goals, and the net economic benefits to customers. For example, total cumulative annual energy savings of 1,600 GWh are necessary to achieve the goal of 5% of total energy resources needed to meet retail load in 2010 from energy efficiency programs.

Funding to Achieve the Energy Efficiency Standard (EES) Goals

Q. What funding level will be needed to achieve the goals of the Energy Efficiency Standard proposed by SWEEP?

A. The Commission should authorize adequate funding to achieve the goals of the Energy Efficiency Standard (EES). SWEEP estimates that energy efficiency funding

² SWEEP plans to issue a data request to APS asking for a summary of DSM program performance to date, though closer to the date of the hearing so that the information will be timely and up-to-date.

of \$0.002 per kWh of retail energy sales (2 mills) will be necessary to achieve the EES goals. In 2007, the third year of the 2005-2007 Portfolio Plan, total DSM energy efficiency funding should be increased from about \$25 million to \$38 million, an increase of about \$13 million. In 2008 and future years, total DSM energy efficiency funding should be equivalent to \$0.002 (2 mills) per kWh of retail energy sales, which would be \$56.8 million in 2008. The additional DSM funding for 2008 would amount to \$40.8 million (the amount above the \$16 million per year authorized in Decision No. 67744).

Note that to meet the \$48 million funding requirement for 2005-2007 ordered in Decision No. 67744, APS will need to increase expenditures above \$16 million in 2006 and 2007 (given that APS spent less than \$16 million in 2005).

Funding for any DSM demand response and load management programs should be in addition to the energy efficiency program funding..

Q. What would be the impact of the total funding level on residential customers?

A. The total energy efficiency funding level of \$0.002 per kWh of retail energy sales (2 mills), if expensed annually, would amount to about \$2.26 per month for the average APS residential customer, based on the test year (see Exhibit JS-2). The incremental increase due to the additional DSM funding, if expensed annually, would be \$1.61 per month for the average APS residential customer (from \$0.65 per month for a funding level of \$16 million to \$2.26 per month for the test year based on a total funding rate of \$0.002 per kWh of retail energy sales).

While rates would increase slightly, the total costs to customers (bills) would decrease due to investment in cost-effective energy efficiency.

DSM Funding and Cost-Recovery Mechanisms

Q. Which DSM funding and cost-recovery mechanisms should be used to provide the additional DSM funding that will be needed to achieve the goals of the EES?

A. In general, energy efficiency funding and cost recovery could be accomplished through funding in base rates, a DSM adjustment mechanism, a system benefits surcharge, amortizing or capitalizing the DSM investments over time, or a combination of funding mechanisms.

For APS, the Commission previously authorized a two-part DSM funding and cost-recovery mechanism, with one portion of the DSM funding in base rates (\$10 million) and the second portion of the DSM funding (at least \$6 million) recovered using a

1 DSM adjustment mechanism (for the amount in excess of the base rate DSM
2 allowance).

3
4 The two-part approach is adequate for the current level of authorized DSM funding.
5 The Commission could choose to expand the current two-part approach or build upon
6 it by using an additional funding mechanism for some or all of the additional funding
7 needed to meet the goals of the EES.
8
9

10 Q. Are there DSM funding and cost-recovery mechanisms that would reduce the rate
11 impacts of the DSM program funding increase in the early years of the EES?
12

13 A. Yes. The Commission could choose to amortize or capitalize a portion of the DSM
14 expenditures, similar to how investments in power plants are recovered through
15 customer rates over time, thereby reducing the customer rate impacts of DSM
16 programs in the early years of the EES. For example, the Commission could spread
17 the additional DSM costs to ratepayers across several years (e.g., 5 years) in a manner
18 that acknowledges that the energy efficiency benefits are achieved over several years.
19
20

21 Q. Could a combination of DSM funding and cost-recovery mechanisms be used?
22

23 A. Yes. For example, the APS DSM energy efficiency funding of \$38 million in 2007
24 could consist of \$10 million in base rates (or possibly more depending on the 2005
25 base rate accrual),³ \$6 million recovered through the DSM adjustment mechanism,
26 and the additional amount of up to \$22 million (depending on the accrual of the 2005
27 base rates) recovered through an expansion of the existing DSM adjustment
28 mechanism. The DSM energy efficiency funding of \$56.8 million in 2008 could
29 consist of \$10 million in base rates, \$16.8 million recovered through an expansion of
30 the existing DSM adjustment mechanism, and the additional \$30 million amortized
31 over five years.
32
33

34 Q. Does SWEEP have a preference for a particular funding and cost-recovery
35 mechanism in this case?
36

37 A. SWEEP is open to considering any of the above funding and cost-recovery
38 mechanisms and combinations. SWEEP does not have a strong preference for one
39 particular mechanism. However, any funding mechanism or combination of
40 mechanisms should have, at a minimum, the same advantages of the two-part base
41 rate and DSM adjustment mechanism approach in place at APS now, including but
42 not limited to the flexibility to adjust funding outside of a rate case to meet customer

³ In order to meet the \$48 million spending requirement in 2005-2007 (Decision No. 67744), APS will need to accrue or carry forward the unexpended portion of the \$10 million in base rates from 2005 for use in the 2006 or 2007 program years.

1 demand for cost-effective, Commission-approved DSM services, and the ability to
2 increase DSM funding above a base amount in the event that additional DSM
3 programs are approved by the Commission between rate cases. In addition, SWEEP
4 believes it would be best to build on the existing funding mechanisms and use a
5 combination of mechanisms, as in the examples above, rather than implementing a
6 new mechanism for 100% of the DSM funding.

7
8
9 **Development of an EES Implementation Plan for the APS Service Territory**

10
11 Q. Should an EES implementation plan for the APS service territory be developed?

12
13 A. Yes. APS should file an implementation plan to achieve the goals of the EES,
14 covering the 2008-2020 program years, in the spring of 2007, at the same time APS
15 refiles the Non-Residential portion of its DSM Portfolio Plan (per Commission
16 order). The EES Implementation Plan should be developed by APS with input from
17 and review by the Collaborative DSM Working Group, which includes Staff and
18 interested parties.

19
20 The EES Implementation Plan should include the historical DSM results for 2005-
21 2006, and should include a forecast for the expansion of the existing Commission-
22 approved DSM energy efficiency programs in 2007. The expansion of approved
23 DSM programs in 2007 should proceed as a result of the order in this proceeding, and
24 should not be postponed for the development, review, and Commission approval of
25 the EES Implementation Plan (which should cover 2008-2020 DSM programs).

26
27
28 Q. What about Staff review and Commission approval of the EES Implementation Plan?

29
30 A. The EES Implementation Plan should be reviewed by Staff, and then be reviewed and
31 approved by the Commission prior to implementation for 2008 and future years.

32
33 Since Staff will participate directly in the development of the EES Implementation
34 Plan as part of the DSM Collaborative Working Group, SWEEP recommends that the
35 Commission provide 60 days for Staff review of the EES Plan after it is filed by APS.

36
37
38 **Other DSM and Pricing Approaches**

39
40 Q. Are there other approaches to achieving energy savings and peak demand reductions
41 that SWEEP recommends?

42
43 A. Yes. SWEEP supports complementary approaches such as demand response and load
44 management programs to encourage peak load reductions, and pricing and rate
45 designs to encourage energy efficiency and reduce peak demand. SWEEP supports

1 these approaches as complements to effective energy efficiency policies and
2 programs, not as replacements for cost-effective utility DSM energy efficiency
3 programs.
4

5 Any proposed demand response and load management programs should be described
6 and documented in the DSM EES plan or in a separate application for program pre-
7 approval. Funding for demand response and load management programs should be in
8 addition to the increased DSM energy efficiency funding set forth herein. Costs for
9 the demand response and load management programs could be recovered through a
10 demand response tariff or through an increase in the DSM adjustment mechanism.
11
12
13

14 Q. Does that conclude your direct testimony?

15
16 A. Yes.

SWEEP Energy Efficiency Program Goals: Energy Efficiency Standard (EES) of 5% by 2010 and 15% by 2020																			Exhibit JS-1 August 2006
Comparison of Base Case vs. Energy Efficiency Standard (EES) Case for the APS Service Territory																			
SWEEP Proposal for EES ->																			
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
1 Base Case Retail Energy Sales (GWh)	23,373	24,564	25,281	26,113	27,105	28,135	29,204	30,314	31,466	32,662	33,903	35,191	36,529	37,917	39,358	40,853	42,405	44,017	45,690
2 Annual Growth Rate (%)		5.1%	2.9%	3.3%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%
				3.8%	Average annual growth 2002-2005				3.8%	Average annual growth 2006-2010					Average annual growth 2006-2020 =				3.8%
3 Energy Savings Goal (% of forecast)				0.09%	0.47%	0.90%	1.30%	1.35%	1.35%	1.35%	1.35%	1.35%	1.35%	1.35%	1.35%	1.35%	1.35%	1.35%	1.35%
4 Annual Energy Savings, 2005-07 Plan				23.6	127.0	132.4													
5 Total Annual Energy Savings (GWh)				23.6	127.0	253.2	379.7	409.2	424.8	440.9	457.7	475.1	493.1	511.9	531.3	551.5	572.5	594.2	616.8
6 Cumulative Annual Savings (GWh)				23.6	150.6	403.8	783.5	1,192.7	1,617.5	2,058.4	2,516.1	2,991.2	3,464.4	3,966.2	4,527.6	5,079.1	5,651.5	6,245.8	6,862.6
7 Cumulative Annual % Savings (relative to the forecast)				0.1%	0.6%	1.4%	2.7%	3.9%	5.1%	6.3%	7.4%	8.5%	9.5%	10.5%	11.5%	12.4%	13.3%	14.2%	15.0%
8 EES Case Retail Energy Sales (GWh)				26,089	26,955	27,731	28,421	29,121	29,849	30,603	31,387	32,200	33,044	33,920	34,830	35,774	36,754	37,771	38,827
9 EES Case Annual Growth Rate (%)				3.2%	3.3%	2.9%	2.5%	2.5%	2.5%	2.5%	2.6%	2.6%	2.6%	2.7%	2.7%	2.7%	2.7%	2.8%	2.8%
									2.6%	EES case average annual growth 2006-2010					EES case average annual growth 2006-2020 =				2.6%
10 Program Expenditures, 2005-07 Plan				\$3,271	\$20,000	\$24,789	\$16,000	\$16,000	\$16,000	\$16,000	\$16,000	\$16,000	\$16,000	\$16,000	\$16,000	\$16,000	\$16,000	\$16,000	\$16,000
11 Additional Program Expenditures (\$,000)				\$13,211	\$40,842	\$42,243	\$43,697	\$45,207	\$46,774	\$48,400	\$50,088	\$51,841	\$53,660	\$55,548	\$57,508	\$59,548	\$61,654	\$63,854	\$66,154
12 Total Program Expenditures (\$,000) (based on EES case retail energy sales)				\$3,271	\$20,000	\$36,842	\$56,842	\$58,243	\$59,697	\$61,207	\$62,774	\$64,400	\$66,088	\$67,841	\$69,660	\$71,548	\$73,508	\$75,542	\$77,654
13 DSM Program Cost Per kWh Saved				\$0.025	\$0.013	\$0.012	\$0.012	\$0.012	\$0.012	\$0.011	\$0.011	\$0.011	\$0.011	\$0.011	\$0.011	\$0.011	\$0.011	\$0.010	\$0.010
14 Net Economic Benefits (\$,000) (societal benefits minus societal costs)				\$4,250	\$30,240	\$57,456	\$85,945	\$88,063	\$90,262	\$92,545	\$94,914	\$97,373	\$99,926	\$102,575	\$105,326	\$108,181	\$111,144	\$114,220	\$117,413
									\$356,217	Cumulative net economic benefits, 2005-2010					Cumulative net economic benefits, 2005-2020 =				\$1,399,833
Notes:																			
Values for 2005 Program Year																			
Energy Forecast																			
2 Annual Growth Rate (%)																			
4 Annual Energy Savings (GWh) 2005-07 Plan																			
10 Program Expenditures, 2005-07 Plan																			
12 Total Program Expenditures, Funding Rate																			
Average Life of Energy Efficiency Measures																			
Basis of Net Economic Benefits																			
The benefit/cost ratio in future years could be higher due to higher avoided energy, capacity, and environmental costs, plus APS will have paid for start-up and ramp-up expenses in the early years.																			
Shown in <i>italics</i> in the 2005 column, data from the APS DSM Semi-Annual Reports for 2005																			
Based on APS Schedule E-7, APS Electric Operating Statistics, APS SFRs (1/31/06)																			
3.8% annually for 2006-2020, based on the actual average annual growth rate for 2002-2005																			
263 GWh sum of first year (annual) savings for three program years (2005-2007) per the APS DSM Portfolio Plan, July 2005; consistent with Ewen testimony (94,201 MWh average savings per year)																			
\$48 million over three years, with ramp up starting in 2005, and 2005 cost based on actual 2005 expenditures per the APS DSM Semi-Annual Reports for 2005, at least \$16 million/year starting in 2008																			
\$0.0020 per kWh of retail energy sales, applied starting in 2008, with proportional estimate of funding needed for 2007, and with actual APS expenditures for 2005																			
12.15 years, consistent with the APS DSM Portfolio Plan, July 2005																			
2.08 benefit/cost ratio per the APS DSM Portfolio Plan, July 2005, and a ratio of societal costs to program costs = 1.4																			
The benefit/cost ratio in future years could be higher due to higher avoided energy, capacity, and environmental costs, plus APS will have paid for start-up and ramp-up expenses in the early years.																			
APS DSM Portfolio Plan: July 2005																			
3,435 Lifetime GWh savings																			
283 First Year GWh savings (sum for 3-year period)																			
94,201 Annual MWh savings (per Ewen direct testimony, p. 30)																			
12.15 Measure life (years)																			
51.7 MW of peak demand reduction																			
\$16 Million annual funding (\$10 M in base rates, at least \$6 M in adjuster)																			
\$68 Million of net economic benefits (societal test) from three program years																			
2.08 Benefit/cost ratio																			
Calculation of Energy Efficiency Savings, and Savings as % of Load Growth																			
146,226 2006-2010 Base Case Retail Energy Sales																			
142,077 2006-2010 EES Case Retail Energy Sales																			
4,148 2006-2010 Reduction in Retail Energy Sales (GWh Savings)																			
32.0% of the 2006-2010 load growth (2.6% in EES Case vs. 3.8% in Base Case)																			
Calculation of % Growth in Retail Energy Sales in Base Case and EES Case																			
Base EES Case																			
2005-2010 120% 114% Growth in Retail Energy Sales																			
2005-2020 175% 149%																			

SWEEP Estimates of APS DSM Energy Efficiency Program Costs Per Customer								Exhibit JS-2
Based on Schedule E-7, APS Electric Operating Statistics, in the APS SFRs (1/31/06)								August 2006
For Test Year Ending September 30, 2005								
DSM Energy Efficiency Standard (EES) designed to achieve energy savings equivalent to 5% of total resource requirements in 2010, 15% in 2020.								
	2005 Retail Sales (MWh)	Annual DSM Funding (\$, 000)	Number of Customers	Annual DSM Cost Per Customer	Average Monthly DSM Cost Per Customer	Average Revenue Per Customer	% of Average Revenue	
Residential	12,034,503	\$ 24,069	886,460	\$ 27.15	\$ 2.26	\$ 1,190.62	2.3%	
Commercial	11,561,699	\$ 23,123	105,454	\$ 219.27	\$ 18.27			
Industrial	2,376,393	\$ 4,753	3,445	\$ 1,379.62	\$ 114.97			
Subtotal	25,972,595	\$ 51,945	995,359	\$ 52.19	\$ 4.35			
Irrigation	25,446	\$ 51	335	\$ 151.92	\$ 12.66			
Public Street and Highway Lighting	111,241	\$ 222	814	\$ 273.32	\$ 22.78			
Other Public Authorities	3,615	\$ 7	193	\$ 37.46	\$ 3.12			
Total for Retail Consumers	26,112,897	\$ 52,226	996,701	\$ 52.40	\$ 4.37			
Estimated Funding Level for DSM Energy Efficiency =				\$0.0020		per kWh of retail sales		